

AI in Radiology

What It Means for Your Care

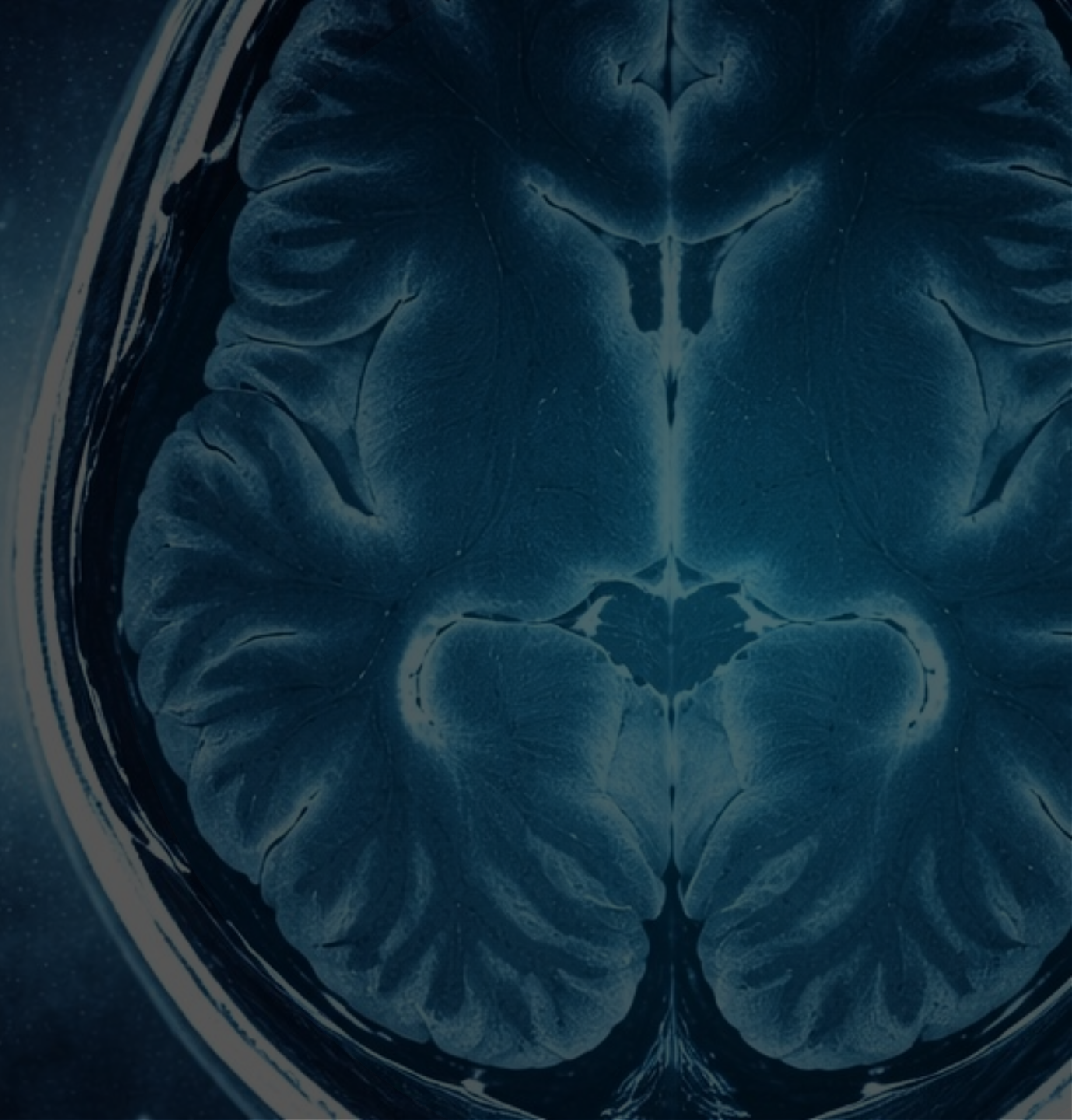
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Disclosures

The authors are non-controlling shareholders in a radiology practice that develops and uses AI technology, which is not currently commercially available.



You're in the ER with chest pain.
A CT scan is ordered.

What happens next?

Without AI

1

The exam waits in a chronological queue

2

The radiologist doesn't receive your whole chart history

3

A difficult hunt for findings and **cumbersome report generation** competing for the radiologist's attention

4

The report is readable by physicians, but **difficult for patients to understand**

With AI



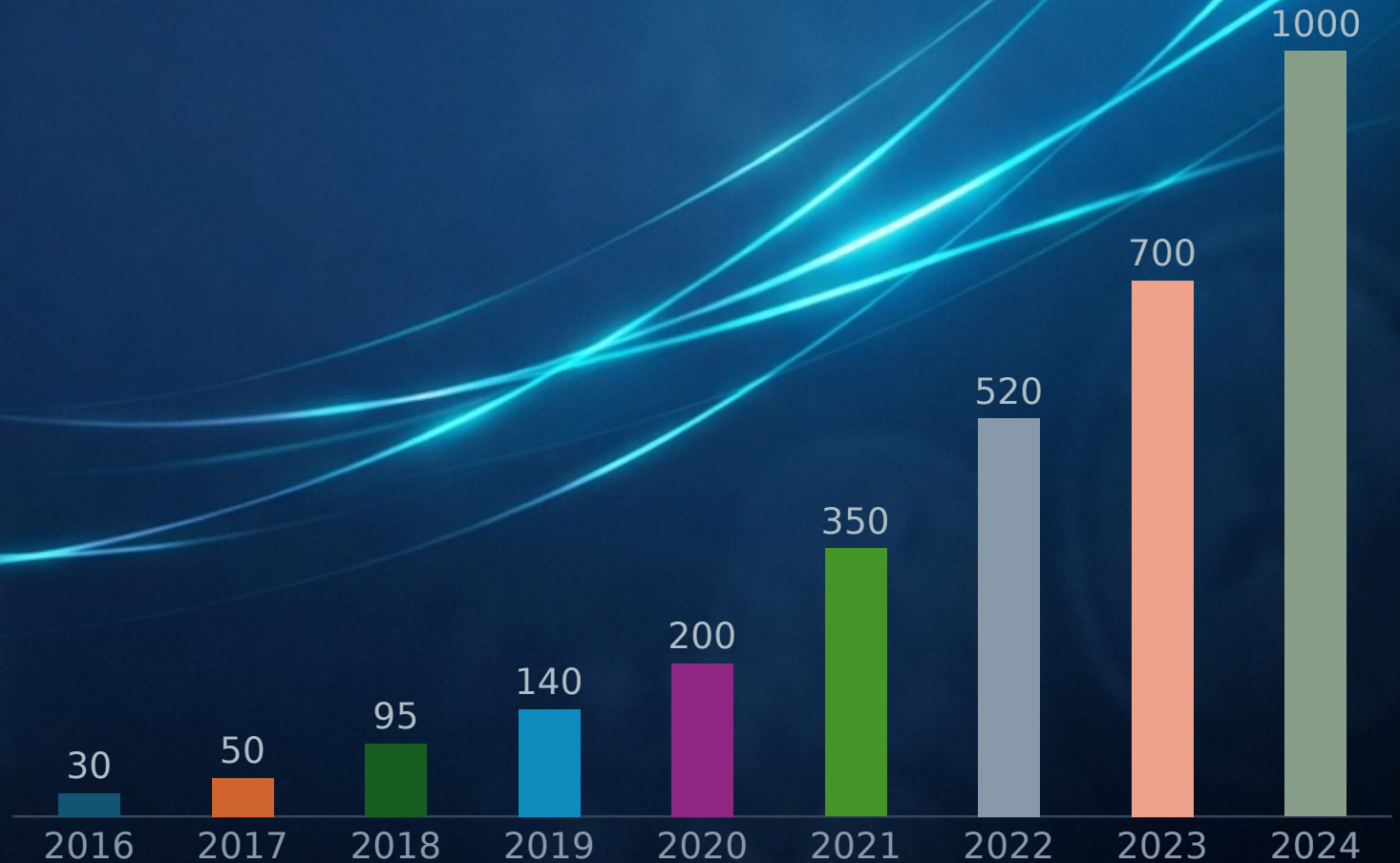
The AI-augmented workflow: faster, smarter, and patient-centered

**Every tool in that
scenario
exists today.**

AI Is Already in Your Healthcare

1,000+

FDA-cleared AI devices in radiology alone. ~75% of all medical AI authorizations.



How AI Gets Approved — FDA Oversight

Radiology AI is regulated as a medical device, like an MRI or pacemaker.

STEP 1

Clinical Testing

Validated against thousands of real cases for accuracy and safety



STEP 2

FDA Submission

Performance data and safety evidence submitted for independent FDA review



STEP 3

Clearance

Must pass FDA review before clinical use

Ongoing Monitoring

Adverse events must be reported; FDA can revoke clearance

Hospital Validation

Hospitals run internal testing before deploying any AI tool

The same agency that regulates your medications regulates these AI tools.



Different Facets of AI in Healthcare

The AI Toolkit in Radiology



Different Facets of AI in Healthcare

The AI Toolkit in Radiology



**Triage &
Detection**



**Vision
Models**



**Language
Models**



**Workflow
Orchestration**



**Decision
Support**



**Imaging
Acceleration**



**Quality
Assurance**



Triage AI — Jumping the Queue

Smith, J — CT Abdomen

Garcia, M — MR Brain

URGENT Chen, W — CT Chest

Johnson, R — X-Ray Chest

Williams, A — CT Spine

AI scans every image for critical findings — clots, brain bleeds, fractures — and flags them instantly.

Narrow AI: trained to find *specific diagnoses*, not to read entire examinations

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Critical cases jump to the front of the line.

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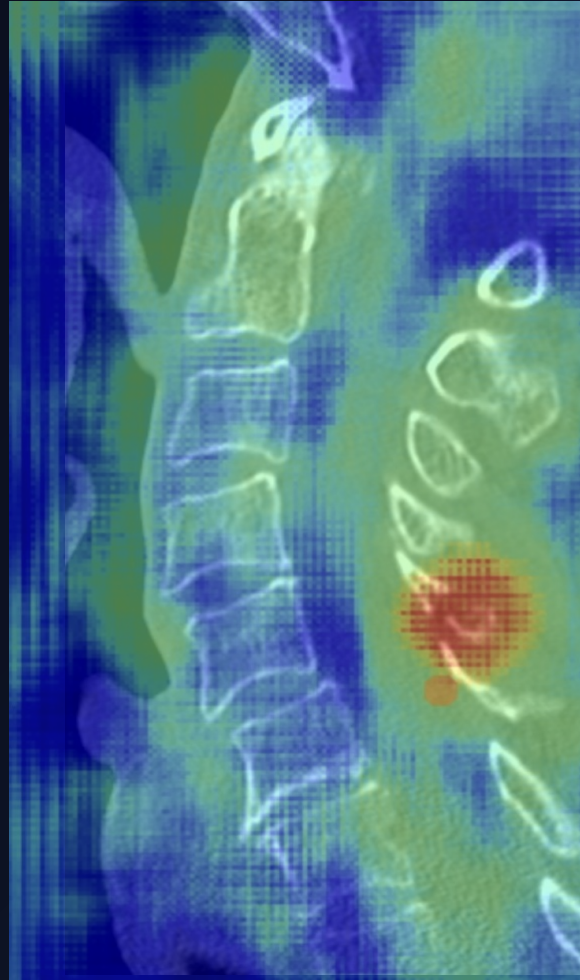
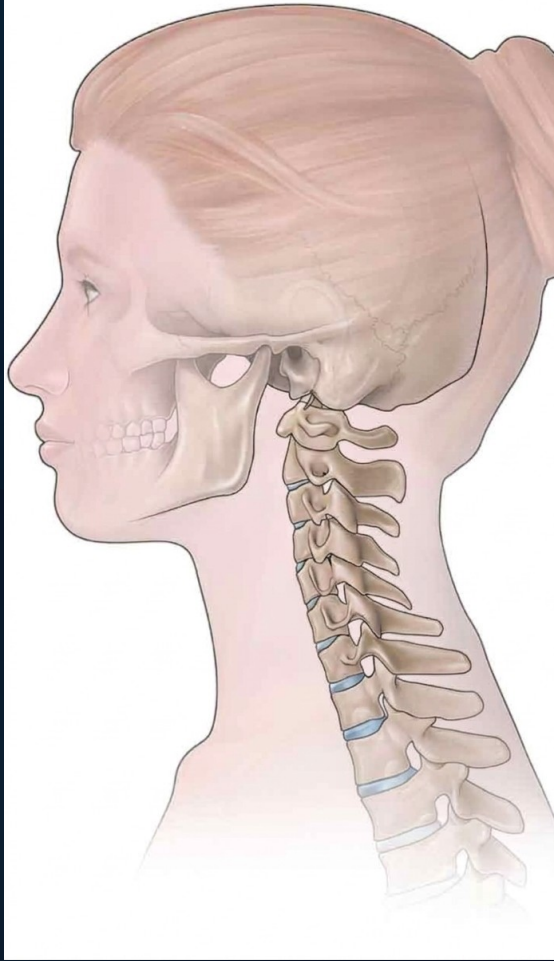
Vision Models — AI That Reads the Scan

Foundation models trained on **entire modalities** — not just one diagnosis.

- Generates full draft reports
- Comparisons to prior exams
- Assists with the whole exam, not just one finding

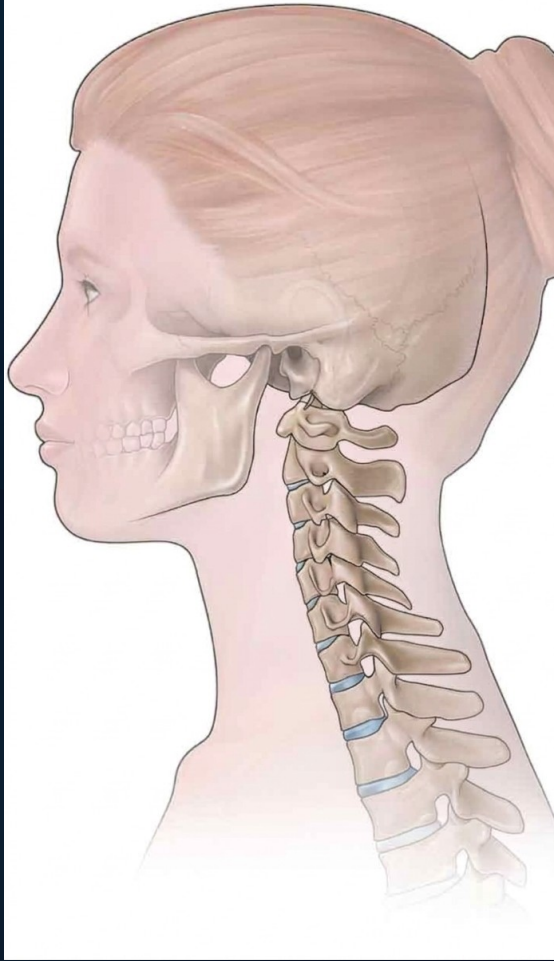


AI Vision: Helping Doctors Hunt for Abnormalities



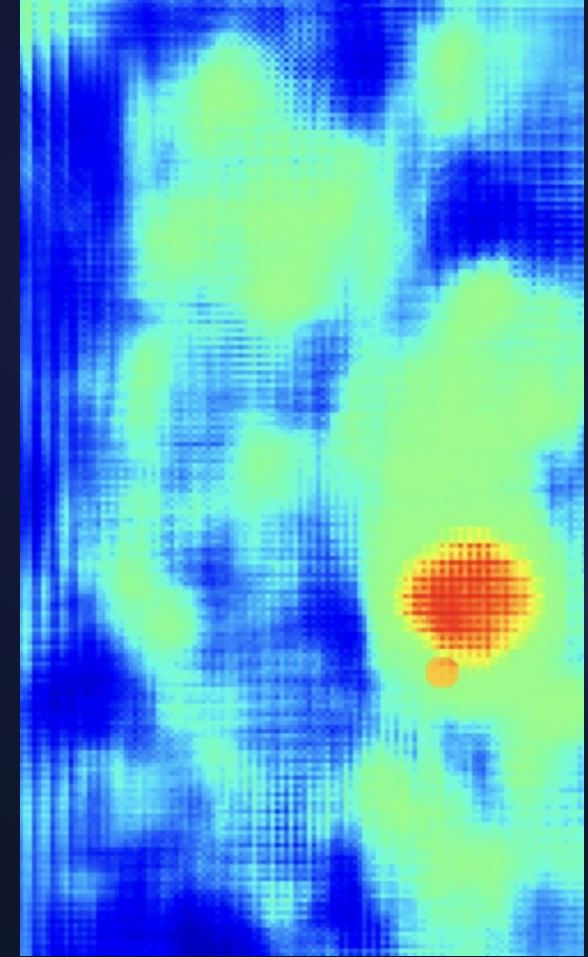
CT Scan: Cervical
Spine

AI Vision: Helping Doctors Hunt for Abnormalities



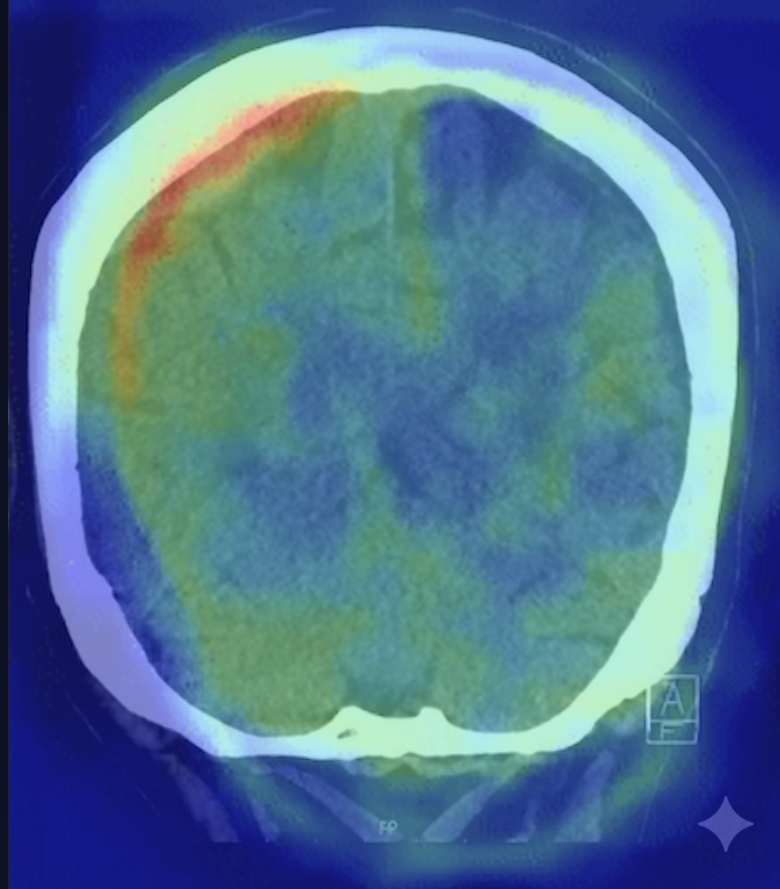
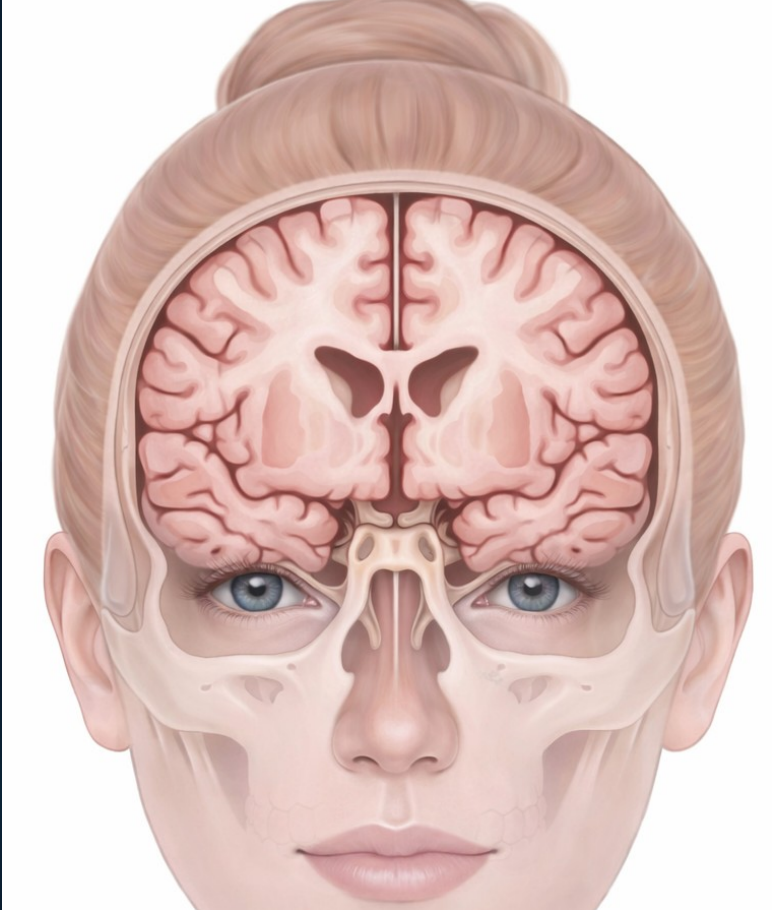
Cervical
Spine
Fracture

CT Scan: Cervical
Spine



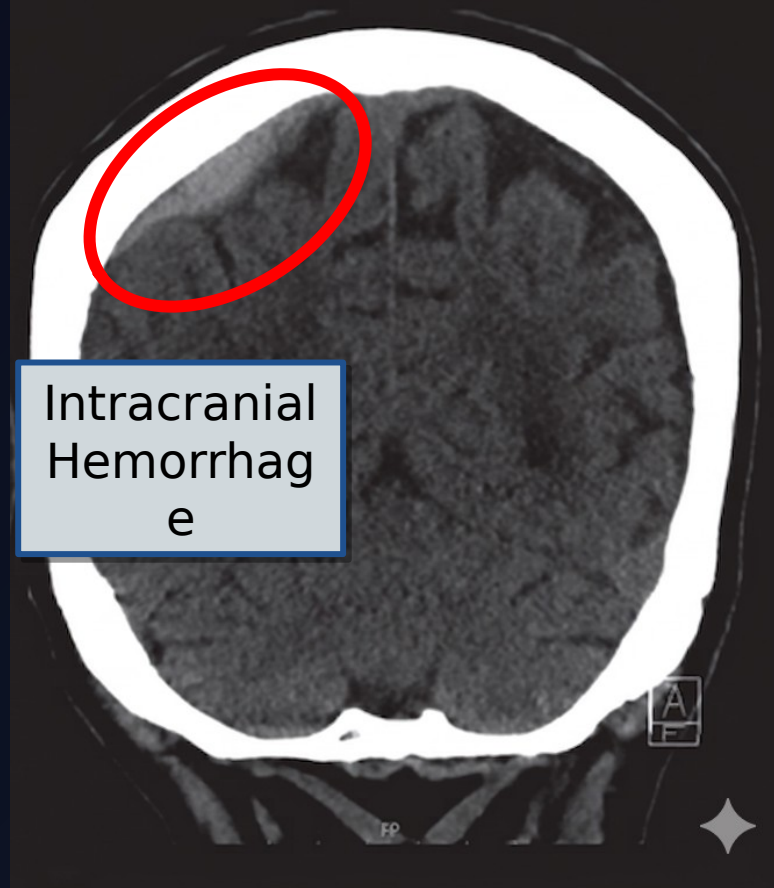
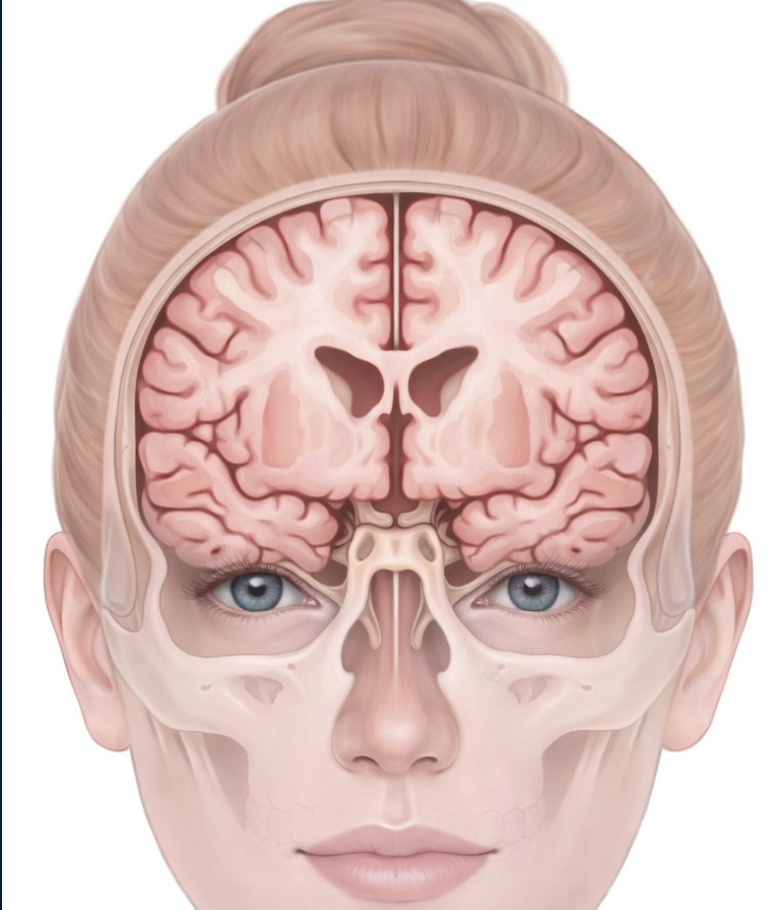
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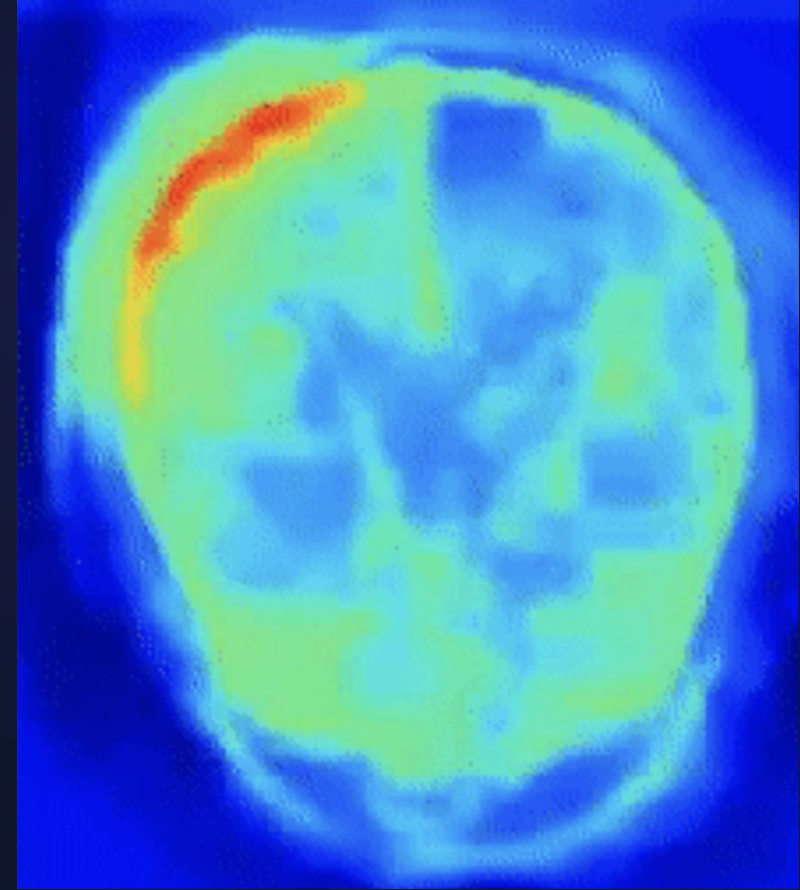


CT Scan: Brain

AI Vision: Helping Doctors Hunt for Abnormalities

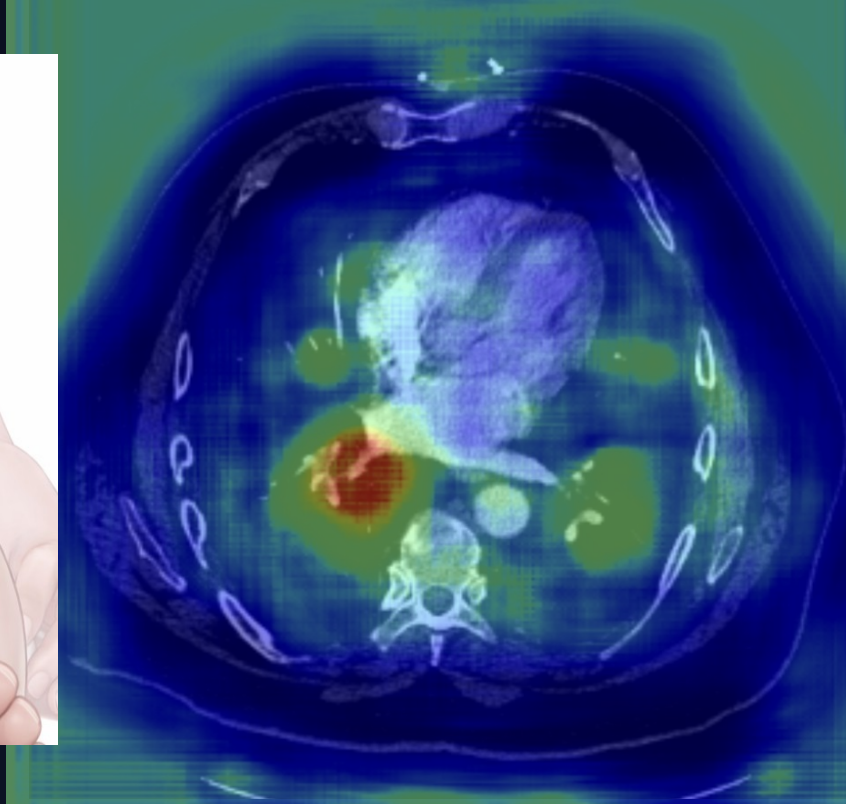
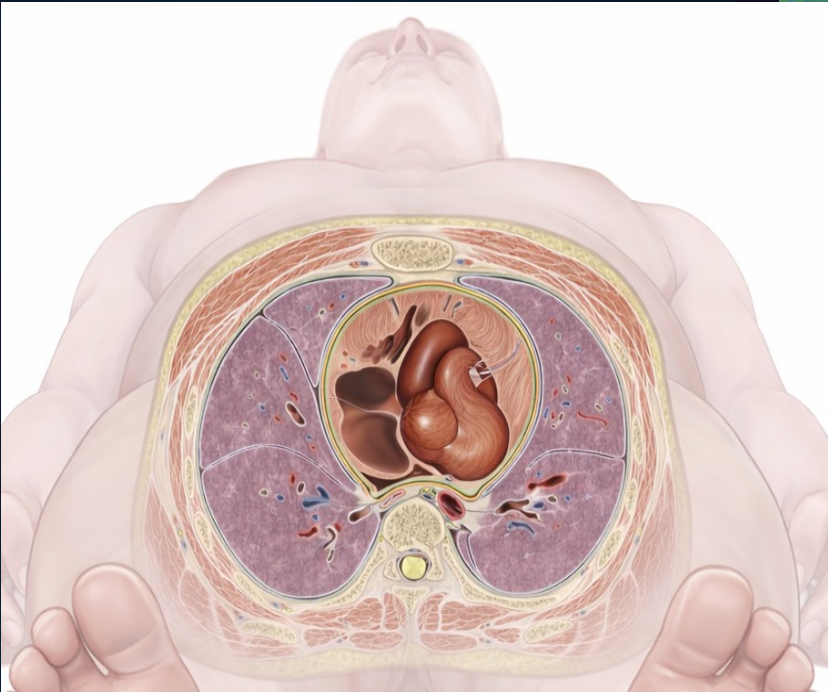


CT Scan: Brain



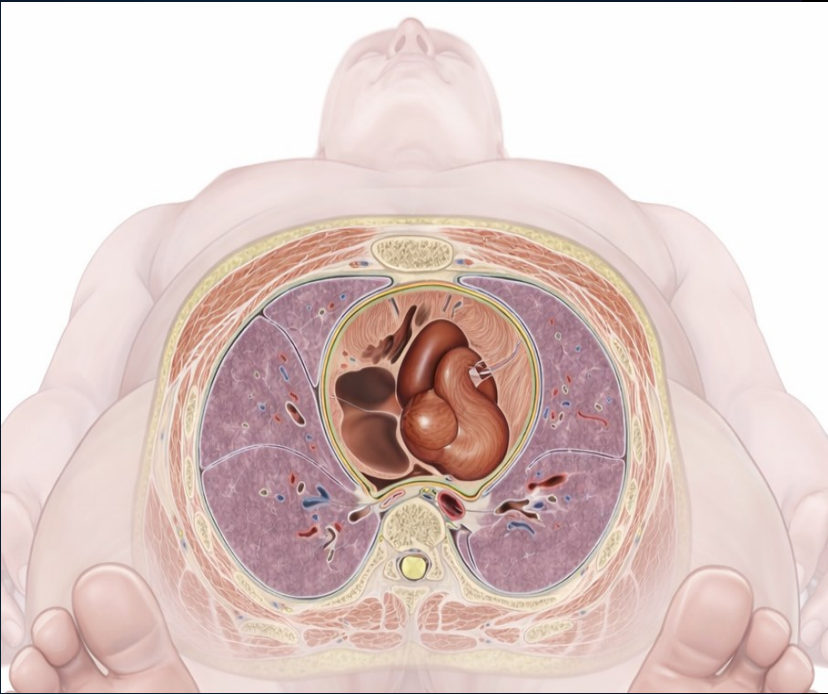
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AI Vision: Helping Doctors Hunt for Abnormalities

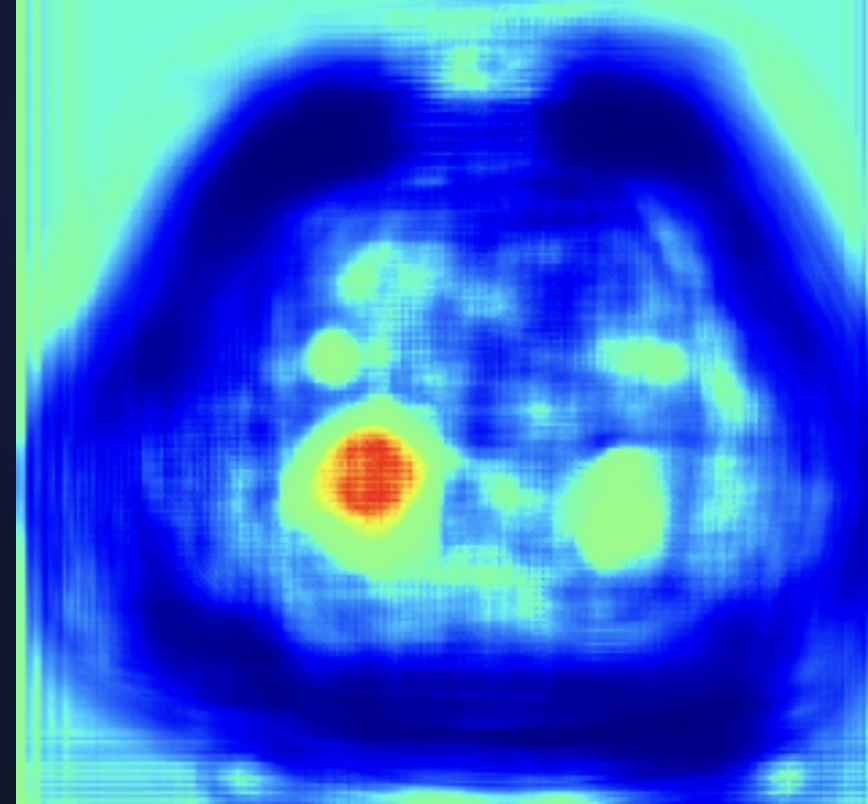


CT Scan: Chest

AI Vision: Helping Doctors Hunt for Abnormalities

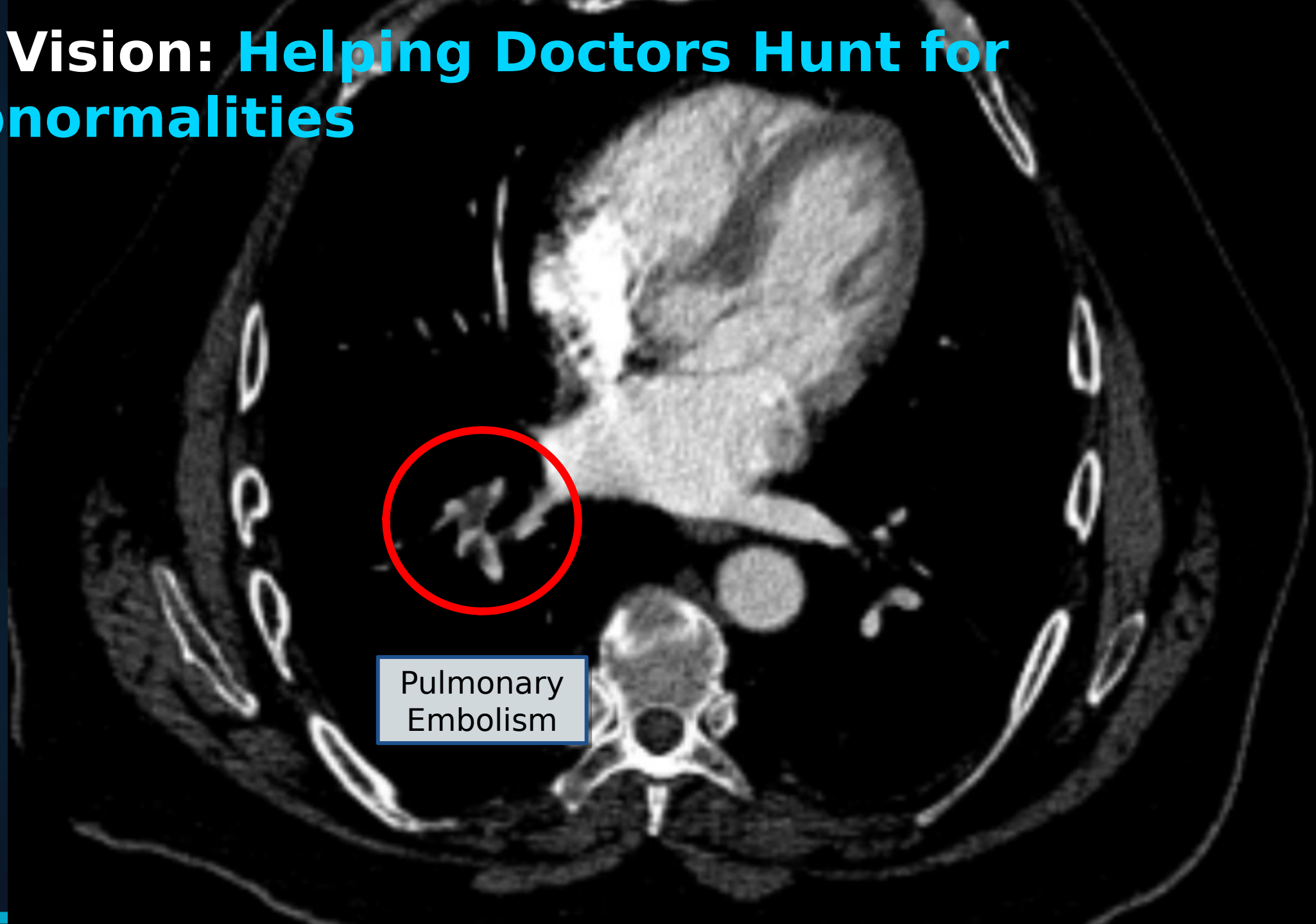


CT Scan: Chest



AI Vision: Chest

AI Vision: Helping Doctors Hunt for Abnormalities



Pulmonary
Embolism

Language Models — Rapid Report Generation

RADIOLOGIST DICTATION

"CTA chest... no PE main or lobar... subseg maybe right lower... small bilateral effusions... heart size wnl... no pneumothorax... f/u as needed..."

AI

STRUCTURED REPORT

CT Angiography, Chest

Pulmonary Arteries: No PE in main or lobar arteries. Possible subsegmental PE in right lower lobe.

Pleural: Small bilateral pleural effusions.

Heart: Normal in size.

The radiologist speaks in shorthand. AI produces a polished, structured report.

The Supporting Cast: Other AI Uses



Measurement Extraction

Digitizes handwritten data



Workflow Orchestration

Air traffic control for radiology



Decision Support

Evidence-based next-step recommendations



Imaging Acceleration

Faster scans, less radiation



Quality Assurance

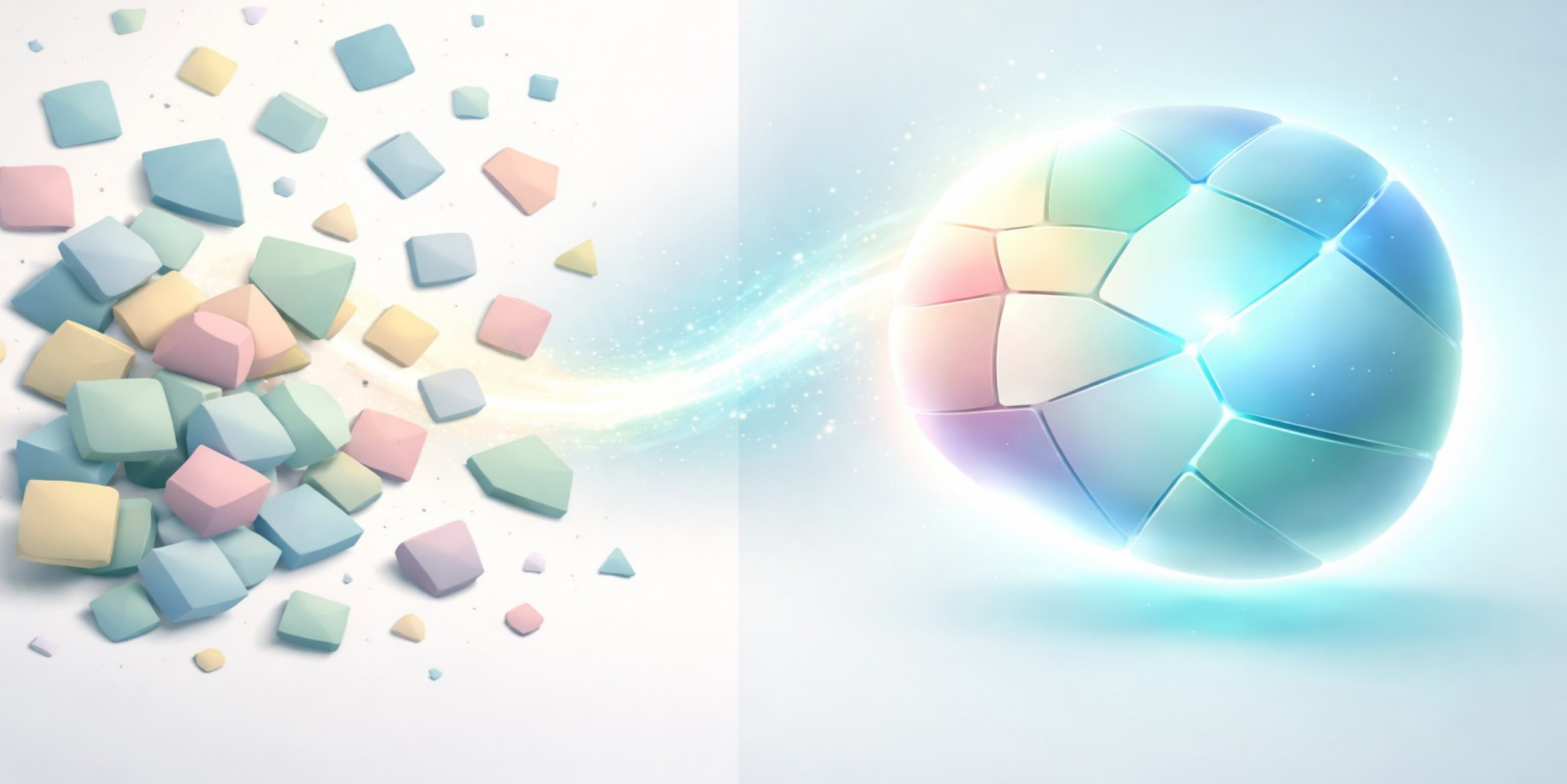
Automated error-catching before sign-off



Prior Search

Instant access to your imaging history

From Widgets to Platforms

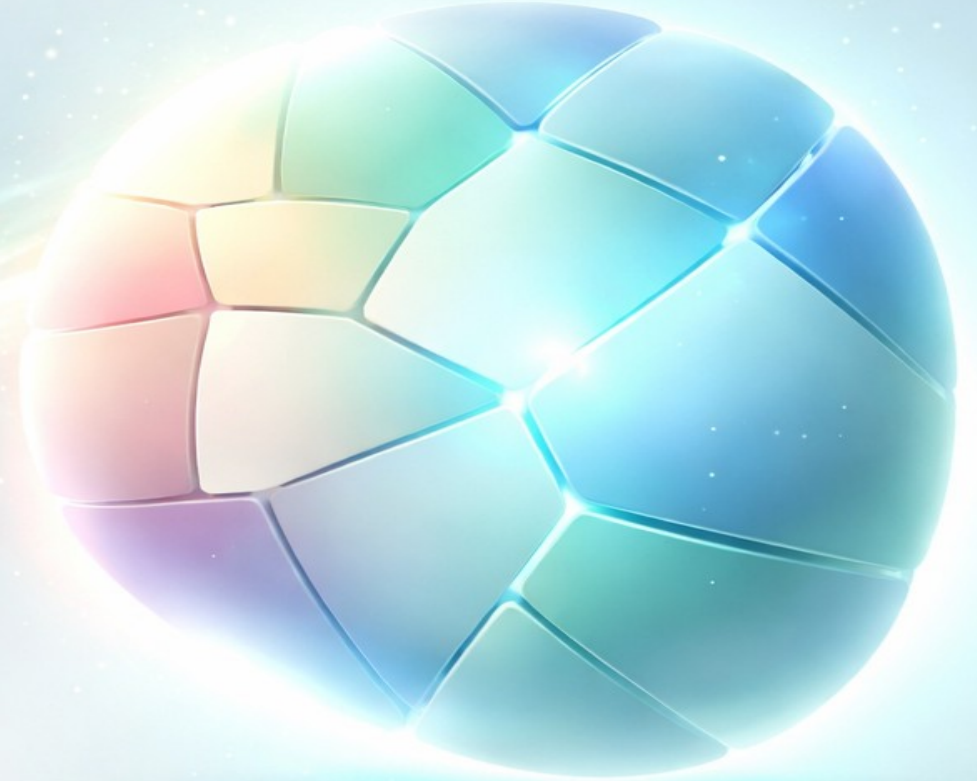


From Widgets to Platforms

Yesterday: 20 Disconnected Widgets



Tomorrow: One Unified Platform



AI woven into the fabric
of the radiology platform

Triage | Read | Report | Route | QA
All in one seamless workflow



**So what does this actually mean
for you as a patient?**

The Patient Experience, Reimagined



Understandable Reports

Reports written in plain language you can actually read



Annotated Images

Visual highlights showing exactly what was found



Faster Results

Critical findings read and communicated in minutes



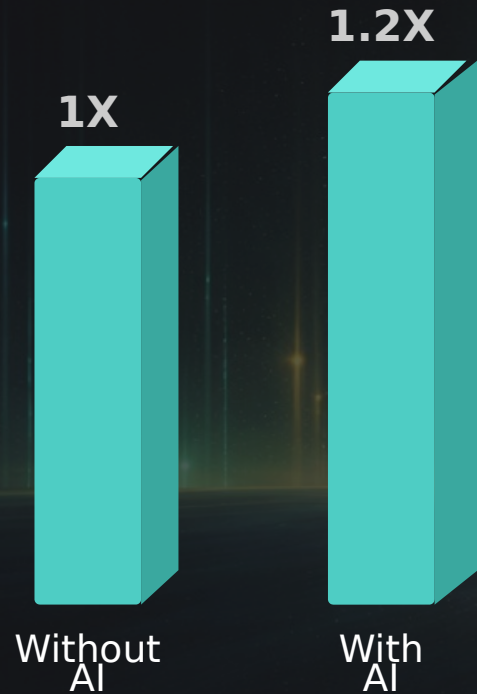
Expanded Access

Better care in rural and underserved areas

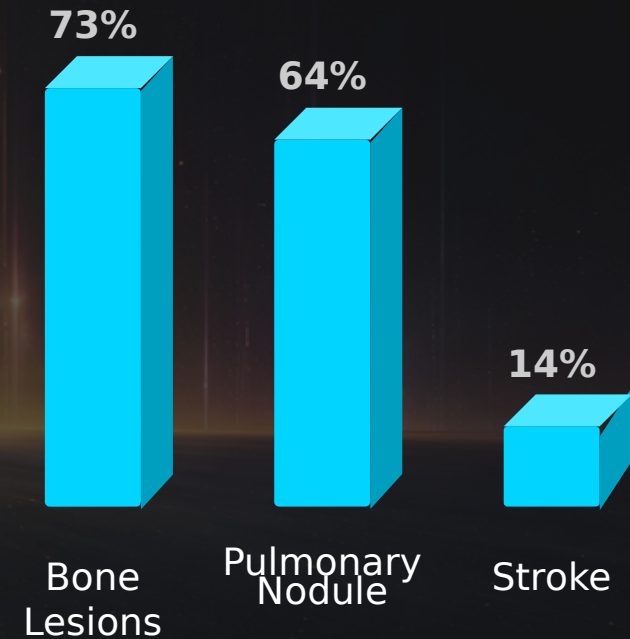
Lower cost

The Promise

Capacity Improvement



Enhanced Detection



Faster

Less Costly

More Accessible

More Accurate

Artificial Intelligence in Interventional Radiology

Clinical Applications, Workflow Integration, and the Future IR
Suite

What does current day IR look like



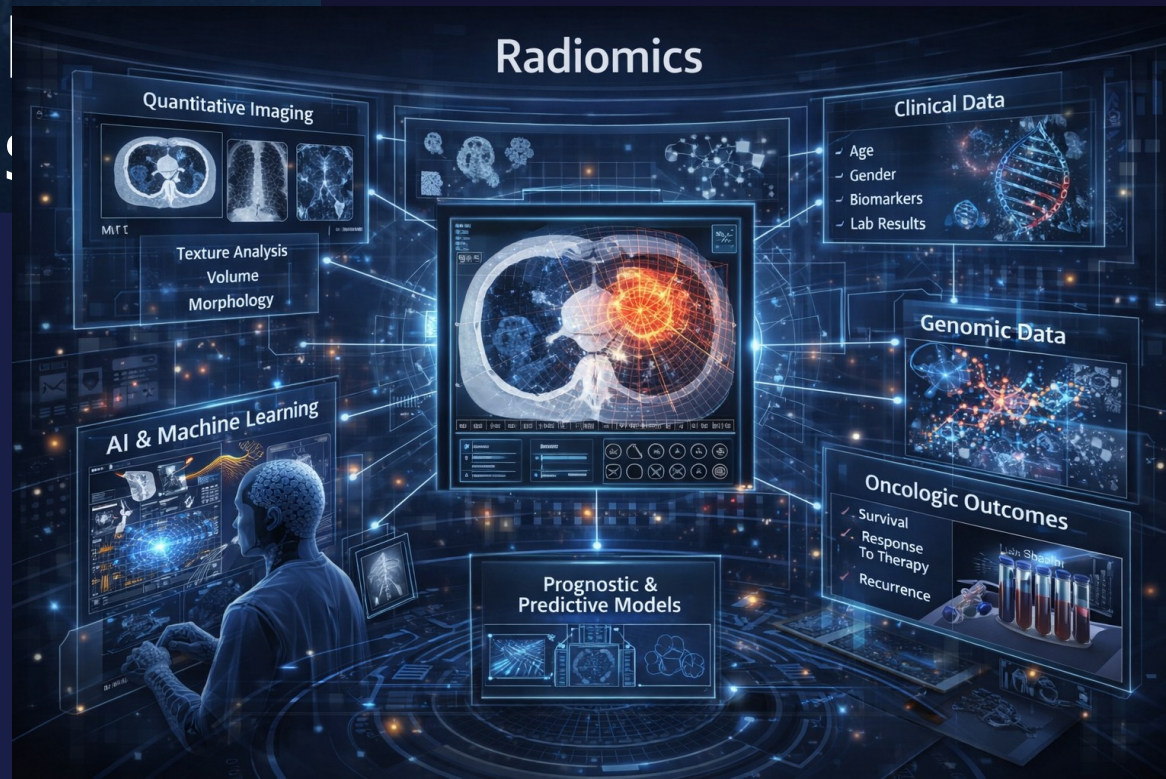
Why IR can benefit from AI as a specialty:

- Increasing procedural complexity
- Increased utilization of IR in aging population
- Growing imaging datasets/radionomics
- Need for precision targeting/treatment planning
- Opportunity for workflow optimization

AI Patient Selection for IR Procedures

Radiomics-based outcome prediction

Machine learning risk stratification



Automated Treatment Planning

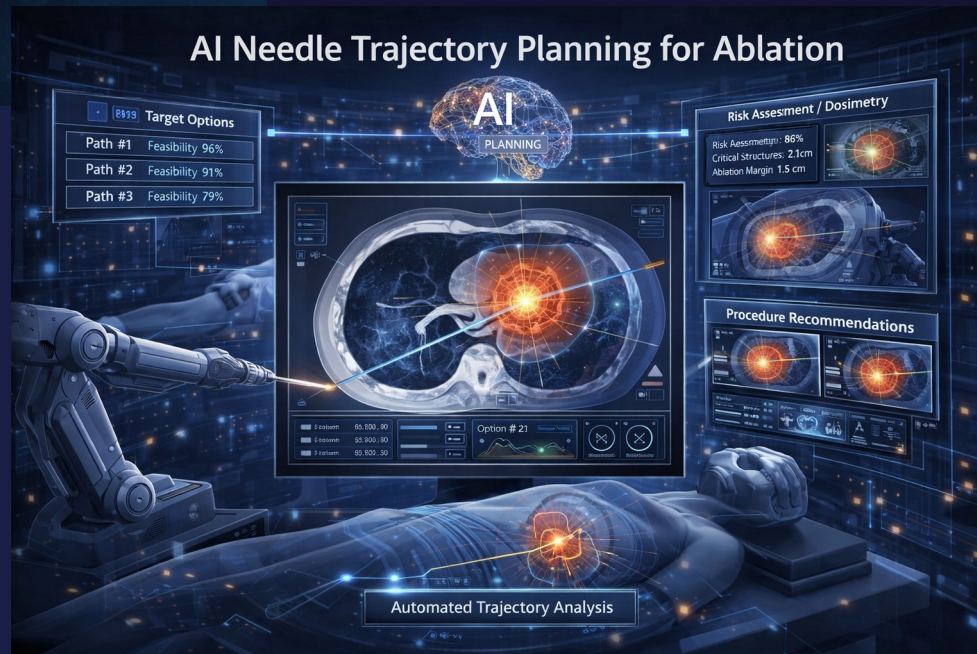
AI outlines tumors and vessels

Creates 3D planning models



AI Needle Trajectory Planning

- Optimal access path calculation
- Avoids critical anatomy
- Improves ablation safety



AI in Embolization Planning

Automated vessel analysis

Flow modeling

Optimized embolization strategies



AI Integrated IR

Interventional Radiology of the Future



Transformative AI Capabilities by 2035

Autonomous navigation

Real-time needle guidance

AI robotic catheterization

Predictive complication
modeling

Automated follow-up
imaging

Precision embolization
planning

Key Takeaways for AI in IR

- AI will increasingly assist in patient selection and procedural planning
- Automated segmentation and radiomics will guide precision therapies
- Real-time AI navigation may improve safety and targeting
- Workflow automation will improve efficiency in IR suites
- Future IR practice will likely integrate AI, robotics, and advanced imaging

AUDIENCE CHECK-IN

What scares you about AI in your healthcare?

Bias? Privacy? Losing access to your doctor? Something else?

The Risks — Eyes Wide Open



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Bias

Training data gaps can perpetuate health disparities



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Automation Complacency

Over-trust in AI leads to missed findings



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Black Box Opacity

AI decisions that can't be explained



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AI decisions that can't be explained

Liability Uncertainty

Who is responsible when AI is wrong?



The Human Guardrail

AI is a **tool**. The doctor is the **decision-maker**.

Physician Oversight

At every step of the workflow

Institutional Validation

Before any tool is deployed

Trust Calibration

Knowing when to override the algorithm

What's Coming Next

TODAY

Longitudinal Tracking

AI that follows your imaging over years — detecting changes invisible to the human eye

Multimodal Integration

Imaging + labs + genetics + clinical notes, synthesized together

Autonomous Next Steps

AI that doesn't just find problems — it initiates the response

Let's Talk

Questions? Reactions? Concerns?

- Have you ever received a radiology report you couldn't understand?
- What would make you comfortable — or uncomfortable — with AI in your care?